AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claims 1 to 18 (Cancelled).

19. (Currently Amended) A system for treating blood from a patient comprising:

an extracorporeal circuit having a blood passage including a blood withdrawal tube, a filter and an infusion tube, said filter having filter blood passage in fluid communication with the withdrawal tube, a blood outlet in fluid communication with the infusion tube, a filter membrane in fluid communication with the blood passage, a filter output section on a side of the membrane opposite to the blood passage, and a filtrate output line in fluid communication with the filter output section;

a biosensor coupled to said extracorporeal circuit and generating a feedback signal indicative of cardiac output of the patient;

a filtrate pump coupled to the filtrate output line and adapted to draw filtrate fluid from the filter at a controlled filtration rate, and

a filtrate pump controller regulating the controlled filtration rate based on the feedback signal, wherein the pump controller includes a processor and a memory storing a control algorithm to determine whether a feedback signal threshold is beyond the feedback signal and storing a baseline feedback signal generated by the biosensor during an initial phase of blood filtration treatment, said controller programmed to execute the control algorithm to reducing the controlled filtration if the feedback signal exceeds the feedback signal threshold, wherein the

signal threshold is automatically determined by the controller and is a function of the baseline feedback signal.

20. (Previously Presented) A system as in claim 19 wherein the feedback signal is indicative of an oxygen level in the venous blood.

21. (Previously Presented) A system as in claim 19 wherein the feedback signal threshold is determined based on a sum of a feedback signal obtained during an initial phase of a treatment of the patient and a predetermined current feedback signal change.

22. (Previously Presented) A system as in claim 19 wherein the filter is a hemofilter.

23. (Previously Presented) A system as in claim 19 wherein the treatment device is a dialysis filter.

24. (Previously Presented) A system as in claim 19 wherein the treatment device is an ultrafiltration filter.

25. (Previously Presented) A system as in claim 19 wherein said control algorithm includes a control step of automatically increasing the reduced filtrate flow, if the feedback signal is within the threshold.